

CLEAN AIR ACT SECTION 112(r) INSPECTION REPORT

Linden LPG Storage Facility

Linden, NJ

GENERAL INFORMATION

Stationary Source	Linden LPG Storage Facility
Date of Inspection	September 15, 2008
USEPA Inspectors	Dwayne Harrington, USEPA – Region II (Edison, NJ)
Contract Auditor	Rohit Shirpewar, Sullivan Group Neil Mulvey, Sullivan Group (Subcontractor)
Description of Activities	<ul style="list-style-type: none">• Opening meeting with facility representative.• Program audit.• Closing meeting with facility representatives. <p>Program audit consisted of the following activities:</p> <ol style="list-style-type: none">1. Document review.2. Field verification.3. Personnel interviews.

STATIONARY SOURCE INFORMATION

EPA Facility ID #	1000 0016 4537
Date of Latest Submission (used for RMP inspection)	Receipt Date: December 16, 2004 (Re-Submission) Anniversary Date: December 15, 2009
Facility Location	South Wood Avenue Linden, NJ 07036 (973) 430-5075
Number of Employees	<i>RMP*Submit</i> states 0 employees (full time employees). Facility management reported that the facility is normally unmanned, however personnel check-in to monitor operations regularly.

Description of Surrounding Area	The facility is located in an industrial area, bordered to the west by the N.J. Turnpike and a refinery to the west of the Turnpike. A PSE&G power generating plant is located to the east. The facility is bordered by open space (former industrial facilities) to the immediate south and east. The facility occupies approximately 40 acres. A natural gas pipeline runs through the facility property.
Participants	<p>Participants included:</p> <p>Dwayne Harrington, USEPA – Region II, Edison, NJ Rohit Shripewar, USEPA Contractor – Sullivan Group Neil P. Mulvey, USEPA Contractor – Sullivan Group Raymond Ciupinski, Project Manager – PSE&G Rayna Laiosa, Sr. EHS Compliance Analyst – PSE&G Bill Nagy, Sr. EHS Analyst – PSE&G Jack Zerega, M&R Stations & Plant Leader – PSE&G*</p> <p>* Lead representative for Linden LPG Storage Facility</p>

REGISTRATION INFORMATION

Process ID #	59662 (Propane Storage)
Program Level (as reported in RMP)	Program 3
Process Chemicals	Propane @ 3,326,400-lbs.
NAICS Code	22121 – Natural Gas Distribution

GENERAL COMMENTS

The Linden LPG Storage Facility receives and stores propane in order to supply it to PSE&G customers as emergency supply during peak use periods. There are eleven horizontal 90,000-gallon LPG storage tanks on-site, all containing liquid LPG. Propane is received by tank truck and shipped by tank truck. However, since propane is only distributed to supplement natural gas distribution during emergency peak use periods, propane is not regularly received or shipped. In fact, the last time a tank truck was loaded with propane was CY-2005. A rail car station at the facility is no longer used.

The facility is not permanently manned (i.e., normally there are no PSE&G employees at the facility). Access to the LPG storage tanks and transfer stations is protected by security fences and a security gate permitting access only with an authorized security card. The facility is remotely monitored 24/7 via closed circuit cameras and motion detectors at PSE&G's Newark Station. Remote monitoring also includes gas detection and UV/IR flame detection. PSE&G's Newark monitoring station is staffed 24/7.

PSE&G personnel conduct regular site visits and perform a weekly Station Operations and Safety Check.

The process may qualify as a Program 1 facility since it operates as a normally unoccupied remote facility, thereby qualifying for an exemption from OSHA's Process Safety Management regulation. The facility is however currently registered under the RMP program as Program 3.

RMP DOCUMENTATION

The facility maintains two primary documents representing the RMP program:

RMP for PSE&G Linden LPG Storage Plant; developed by TRC Environmental Corp. (Lyndhurst, NJ); developed in July 1999; Rev. 1, 12/04.

This Manual contains information supporting the RMP registration.

Process Safety Management (PSM) Program for the PSE&G Linden LPG Storage Plant; developed by TRC Environmental Corp (Lyndhurst, NJ); developed in July 1999; Rev. 3, 12/04

This Manual contains written programs and procedures for all PSM/RMP elements. This Manual is referred to in this report as the 'PSM Manual'.]

Comments regarding select RMP elements follow:

Management System [40 CFR 68.15] & Registration

The M&R Stations & Plant Leader has overall responsibility for the site and for implementation of the RMP program. Facility management demonstrated a good understanding of the RMP requirements and the facility's program. RMP documentation and records were readily accessible and well organized.

The most recent RMP registration was submitted on December 16, 2004. The five-year anniversary is December 15, 2009. The propane registration quantity of 3,325,400-lbs. is based on eleven 90,000-gallon tanks filled to 80% capacity with propane density of 4.2-lbs./gal.

Process Safety Information (PSI) [40 CFR 68.65]

The facility has required PSI available for review.

PSI available for review includes:

- Facility plot plan
- Propane Flow Diagram; CTR-3698; 7/28/98
- Facility P&ID showing fill/transfer lines and valves
- Pump Area Piping Plan; # 9414-1; Rev. 1; 7/14/94
- Propane Storage Tanks; SNG Plant; 1110-1-50-26; 6/18/70
Shows detail on tanks, including PSVs and setpoints (2 @ 220 PSIG and 2 @ 250 PSIF), and tank instrumentation
- Hazard classification drawing

See the RMP Checklist for details on PSI available for review

Process Hazard Analysis (PHA) [40 CFR 68.67]

The two most recent PHA studies were on file and available for review. An original PHA was conducted in 1999. See comments below:

- Lead by TRC (outside consultant)
- Team included facility personnel
- Used What-If/Checklist Method
- Checklist based on NFPA 59 – Standard for the Storage and Handling of LPG at Utility Gas Plants; additional set of What-if Questions added
- PHA documentation includes: checklist question, answer, comments (which generally documented existing safeguards in place)
- Identified one general recommendation to develop monthly inspection checklists. This recommendation was resolved and is included as part of on-going mechanical integrity.

A PHA revalidation was completed on September 23, 2004. The revalidation was led by an outside consultant (TRC). The revalidation was completed using a team approach including facility personnel. The revalidation was a review and confirmation that the 1999 study reflected current operations. No recommendations were identified.

Standard Operating Procedures (SOPs) [40 CFR 68.69]

The facility has written operating procedures specific to the equipment and activities related to the propane receipt, storage, and distribution process. See the RMP Checklist for a detailed review. Written operation procedures exist for the following normal operations:

- General Transfer Instructions
- Unloading Propane Tank Trucks Using the Liquid Truck Pumps
- Determination of Specific Gravity on LP Gases
- Placing the Hydraulic Fluid System in Service
- Truck Loading Instructions
- Operations of Shand & Jurs Safety Valves
- Operations of Storage Vessel Slip Tubes
- Emergency Trip Testing Hydraulic Fluid System
- Gas Detection System
- Fire Detection System

The facility has written safe work procedures, including a Lock-out/Tag-out Procedure, dated 9/4/08.

Documentation includes annual certifications in 2005, 2006, and 2007. The next annual certification is due prior to the end of December 2008. A suggestion was made to facility management to make the annual certification more targeted to a specific procedure rather than a general certification.

Training [40 CFR 68.71]

The PSM Manual identifies three employees as ‘operators.’ Operations involve primarily maintenance work. The PSM Manual states that the operators are grandfathered into the program in lieu of initial training (this is permissible under the regulation per 40 CFR 68.71(a)(2)).

Records of refresher training were reviewed. The most recent refresher training was given on 12/28/07 which included four hours of training. Documentation included a list of topics covered, attendees, and instructor. Refresher training records were also reviewed for the following dates: 12/8/06, 2/10/06, 2/5/04, 12/14/04, and 1/14/03.

The facility verifies operator understanding of training received by completing an “Operator Qualification Evaluation” once every three years. This includes an on the job field evaluation of specific tasks. Documentation includes a completed checklist, date of evaluation, statement of qualification, and initials of trainee and trainer.

Mechanical Integrity [40 CFR 68.73]

The facility has an established mechanical integrity program. Following is a list of documents available for review:

- LPG Plant Weekly Checklist – list of ‘safety’ items checked regarding LPG tanks. A review of several checklists identified occasions where the weekly inspection was not performed or where a particular item was not inspected.
- Monthly checklist for fire extinguishers
- Annual Maintenance Program checklist
- Linden LPG Storage Plant – Fire Hydrant Check and Flush Data Sheet
- Quarterly calibration of gas sensors; reviewed records for March through June 2008
- Records of testing PSVs on bulk LPG storage tanks; records for testing in October 2007. Records include: set pressure, tank vapor pressure at time of test; hydraulic pressure necessary to lift valve, and adjusted discharge pressure; tests +/- 10% of setpoint is acceptable.

Facility management explained that the UV/IR flame sensors are ‘self-checking’ meaning that there would be a local failure indication if the instrument failed. The LPG Plant Weekly Checklist includes a check whether the flame detection system is experiencing a failure alarm.

The facility generally maintains good documentation of equipment inspections and tests.

The LPG tanks were installed in 1972. Facility management reported that there has never been an internal or nondestructive examination (NDE) of the LPG tanks. They reported that this is acceptable based on operating history of other tanks in similar service.

Management of Change (MOC) [40 CFR 68.75] & Pre-Startup Review (PSR) [40 CFR 68.77]

The facility has a combined MOC / PSR procedure. Facility management demonstrated a good understanding of management of change. MOC / PSR records were reviewed for the following changes:

- Installation of Flame Detection System – September 2004
Completed MOC / PSR review, including necessary authorizations.
- LP Gas Detection System – June 2004
Completed MOC / PSR review, including necessary authorizations.
Verified that SOPs were updated and training was completed regarding this change.
- Upgrade LP Transfer Hose – January 2003
Completed MOC / PSR review, including necessary authorizations.

Completed MOCs however did not include documentation that an evaluation of the impact of the changes on safety and health was completed.

Compliance Audits [40 CFR 68.79]

The most recent compliance audit available for review is documented in a report dated September 30, 2004. The audit was conducted by an outside consulting firm (TRC). The audit appeared complete and thorough. The audit identified five recommendations. Documentation on the resolution of the five audit recommendations was available for review and confirmed as completed.

The next three year audit was due by September 2007. Facility management reported that this audit was not conducted.

Incident Investigation [40 CFR 68.81]

The PSM Manual includes a written incident investigation procedure. Facility management reported that there have been no propane releases in the last five years.

Employee Participation [40 CFR 68.83]

The PSM Manual includes a written employee participation plan. The plan describes employee participation in the facility's RMP program including employee awareness, employee participation in program development and implementation, and employee access to RMP information. The PSM Manual is accessible by all employees in the Operations Office.

Hot Work Permit [40 CFR 68.85]

The facility has written safe work procedures, including a Hot Work Permit / Confined Space Procedure, dated 9/4/08. The Hot Work Permit includes a checklist and appears to be in compliance with §1910.252(a).

Contractor Safety [40 CFR 68.87]

The facility has a written "Contractor Health & Safety Component," dated 5/4/07. The procedure includes: contractor screening/selection, contractor orientation, and contractor periodic performance evaluations. Facility management reported that they haven't used a contractor to work on or near the process in over seven years. There were no contractor files available for review.

Emergency Response [40 CFR 68.90 – 68.95]

The facility's emergency response plan was reviewed by USEPA.

FACILITY TOUR

Several items noted during the facility tour include:

- ❑ The facility performs ‘in-line’ testing of the LPG storage tank PSVs (e.g., the PSVs do not need to be removed from the tank for testing / inspection.
- ❑ The liquid discharge lines from the LPG storage tanks are designed with manual valves and hydraulically operated spring-loaded valves (e.g., hydraulic pressure is required to open spring-loaded valve). A fusible link in the hydraulic system will melt at 212 deg.F, causing loss of hydraulic fluid resulting in loss of pressure causing spring-loaded valve to close. Design intent is to isolate inventory in storage tank from downstream transfer lines in the event of a fire.
- ❑ The LPG rail car transfer station is out-of-service. However, LPG lines to/from the rail car transfer station are still physically connected to the LPG storage tanks. A blank flange is installed in the LPG liquid line, however the LPG vapor line is isolated by only a closed manual valve. Piping to the rail car station that is out-of-service is known as ‘dead-legs.’ Dead-legs in the LPG and chemical process industry create potential hazards. Reference a LPG fire that occurred at the Valero McKee Refinery in Sunray, TX on February 16, 2007. As reported by the U. S. Chemical Safety Board (CSB), several factors contributed to that incident, including freezing / thawing and subsequent LPG release from a dead-leg in the system. **In light of existing conditions at the Linden LPG Storage Facility, the obvious potential for line freezing, and the 2/16/07 fire due to dead-legs in an LPG process, the facility should review the findings and recommendations made in the CSB Report (dated July 2008; Report No. 2007-05-I-TX) and implement risk reduction measures as necessary.**
- ❑ The LPG storage tank area is equipped with 11 LEL detectors. The detectors alarm at 1%, 20% and 25% of LEL. There are five UV/IR flame detectors in the storage tank area. The LEL and UV/IR flame detectors are monitored locally at the Linden facility and remotely (24/7) at a central monitoring station in Newark, NJ.

FINDINGS/RECOMMENDATIONS

Mechanical Integrity [40 CFR 68.73]

- ❑ The facility completes an “LPG Plant Weekly Checklist” as part of its mechanical integrity program. This checklist includes a list of ‘safety’ items checked regarding the LPG tanks. A review of several checklists identified occasions where the weekly inspection was not performed or where a particular item was not inspected. **The facility should complete the weekly inspections as specified in the checklist included in their mechanical integrity program, as required by 40 CFR 68.73(d)(3).**
- ❑ The eleven LPG tanks were installed in 1972. Facility management reported that there has never been an internal inspection or nondestructive examination (NDE) of the tanks. They reported that this is acceptable based on operating history of other tanks in similar service.

A standard industry code, API 510 (Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration, 9th Edition, June 2006) specifies the type and frequency of inspections and tests for pressure vessels. Specifically, Section 6 (Interval / Frequency & Extent of Inspection) outlines requirements for various types of inspections, including external inspections and internal / on-stream inspections.

According to API 510, visual external inspections are required at least every 5-years. Internal inspections or NDE tests are required at a frequency of ½ the remaining life of the vessel, or every 10-years, whichever is less. Internal inspection requires the vessel to be taken out-of-service and for the inspector to physically enter the vessel. NDE tests can be performed while the vessel is in-service. NDE tests typically include ultrasonic thickness measurements, radiography or other means to measure metal thickness.

The frequency of either external inspections or internal / on-stream inspections can be adjusted by performing a Risk Based Inspection (RBI) assessment. RBI is a systematic evaluation of both the probability of failure and consequences of failure, in accordance with API 580.

Since the tanks have been in service for approximately 27 years without an internal inspection or NDE test, the facility must confirm tank integrity per API-510 (e.g., by conducting internal inspections, NDE tests or other means such as RBI assessment), as required by 40 CFR 68.73(d)(1) & (3).

Management of Change (MOC) [40 CFR 68.75] & Pre-Startup Review (PSR) [40 CFR 68.77]

□ MOC / PSR records were reviewed for the following changes:

- Installation of Flame Detection System – September 2004
- LP Gas Detection System – June 2004
- Upgrade LP Transfer Hose – January 2003

Completed MOCs however did not include documentation that an evaluation of the impact of the changes on safety and health was completed. **The facility should ensure that MOC reviews include documentation that the impact of change on safety and health is reviewed, per 40 CFR 68.75(b)(2).**

Compliance Audits [40 CFR 68.79]

□ The most recent compliance audit available for review is documented in a report dated September 30, 2004. The next three year audit was due by September 2007. Facility management reported that this audit was not conducted. **The facility should complete the required RMP compliance audit every three years, as required by 40 CFR 68.79(a).**